

REMARKS

Claims 1, 2 and 7-41 are pending in the application. Claims 1, 2 and 7-41 were rejected under 35 U.S.C. §112, second paragraph, as described in paragraphs 4-13 of the Office Action. Claims 1, 2, 7-21, 30, 31, 33, 34, and 37-41 were rejected under 35 U.S.C. §103(a), as described in paragraphs 14-40 of the Office Action. Claims 22-29, 32, 35 and 36 were rejected under 35 U.S.C. § 103(a), as described in paragraphs 41-51 of the Office Action. Claims 1, 2, 40 and 41 are the only independent claims.

The phrase “the present access request is write access” has been changed to --the present access request is read access-- in the paragraph beginning on line 21 of page 9 to correct an error made during translation of the Japanese priority application 11-085818. Attached hereto is page 10 of the priority application which corresponds to page 9, lines 21-24 of the English specification. The following is the correct English translation of [0033] of the Japanese priority application:

[0033]

In a judgment process 403, a "yes" judgment is made in the case of any one of (a) preceding access = write access, and the present access request = read access, (b) preceding access = read access, or (c) no preceding access exists.

The phrase “peculiar information” has been changed to --distinctive information-- throughout the specification to more accurately define the information.

The remainder of the amendments to the specification generally place the specification in better U.S. form.

The phrase “peculiar information” has been changed to --distinctive information-- in each of claims 1, 2, 40 and 41 to more clearly define the claimed invention and to overcome the rejection discussed in paragraph 6 of the Office Action.

The phrase “said access state manager, and to send back the result of judgment” has been changed to --said access manager, and to send the result of judgment back to said nodes-- in each of claims 7 and 8 to overcome the rejections discussed in paragraphs 8-10 of the Office Action. Further, it is submitted that the information in the phrase “based on information from said access manager” includes information from the access manager, as recited in the claims.

The phrase “said result of judgment after securing a transmission band for accessing” has been changed to --said result of judgment to said nodes after securing a transmission band for accessing-- in claim 9 to more accurately indicate where the access manager sends the result of the judgment.

Claims 12 and 13 have been amended to be dependent upon claims 1 and 2, respectively, and therefore to overcome the rejection discussed in paragraph 11 of the Office Action.

Claims 14 and 15 have been amended as suggested in paragraph 12 of the Office Action, to overcome the rejection discussed in paragraph 12 of the Office Action.

The amendments to claims 1-2, 7-10, 12-15 and 40-41 discussed above are to overcome the outstanding rejections under 35 U.S.C. § 112, second paragraph without narrowing the scope of the claims as previously presented.

Applicants respectfully traverse the rejection of claims 30-35 as discussed in paragraph 13 of the Office Action for the following reasons.

Each of claims 30-32 require the data manager to be further operable to “send system configuration information of the network,” which is not recited in any of independent claims 1, 2, 40 and 41. Each of claims 33-35 recites that the data manager is further operable to “send management information based on a request from the node,” which is not recited in any of independent claims 1, 2, 40 and 41. Accordingly, each of claims 30-35 further limit their respective base claims.

In light of the above discussion, it is respectfully requested that the outstanding rejections under 35 U.S.C. § 112, second paragraph, be withdrawn.

In accordance with one aspect of the present invention, the access manager is operable to investigate whether or not to approve access to data of the recording medium apparatus and to send approval of the access to a node and the node is operable to then access the data of the recording medium apparatus. This feature is disclosed for example with respect to Fig. 4. In particular, in item 301 of Fig. 4, and as described for example on page 9, lines 21-24, node access to the data is not rejected if any one of “(a) preceding access is write access, and the present access request is a read access, (b) preceding access is read access, or (c) no preceding access exists.” Further, as illustrated in items 305 and 306, and described on page 9, lines 25-31, access is not rejected if it is judged that there is a sufficient margin in the I/O band for the hard disk and it is judged that there is sufficient margin in the network band. As illustrated in item 407 and discussed for example on page 10, lines 1-3, if access is not denied, the access bands are secured in the I/O band managing function processing unit 305 of the hard disk and the network band managing function. Finally, as discussed on page 10, lines 19 and 20, on “receiving the result of judgment, the node immediately commences access to the data.”

The above discussed features of this aspect of the present invention are now recited in each of amended independent claims 1, 2, 40 and 41.

Paragraph 17 of the Office Action indicates that He et al. (He) does not expressly disclose “an access manager being operable to judge whether or not to approve the access based on at least a part on band state of the network and a band state of an interface of said recording medium apparatus.” Accordingly, He fails to disclose an access manager, as required in any of independent claims 1, 2, 40 and 41. Further, one of ordinary skill in the art would not have been motivated to modify the disclosure of He to arrive at an access manager, as recited in any of independent claims 1, 2, 40 and 41.

Taniguchi et al. (Taniguchi) fails to disclose or suggest the shortcomings of He such that a combination of the disclosure of He and Taniguchi would disclose or suggest that which is required in any of independent claims 1, 2, 40 and 41.

Paragraph 17 of the Office Action indicates that Taniguchi teaches “a method (see abstract) of handling data access (col. 1, lines 5-22) in which transfer is controlled through load balancing techniques (col. 1, line 65 - col. 2, line 10) in which access is controlled based upon the state of the network and requesting node, and upon the priority of the information and requesting node (col. 2, lines 18-65).”

As explicitly disclosed in column 2, lines 20-22 and 55-65 of Taniguchi, the reference discloses discarding a packet having a lower priority level (a packet with a lower priority in a stream is positively annulled) to decrease data volume so that an actual transmission rate is changed to a new transmission rate. However, Taniguchi does not teach or suggest determining whether or not to grant access to data based on a preceding access, the available I/O band for the hard disk and the available band of the network. Therefore, Taniguchi does not teach or suggest an access manager that is operable to investigate an access state of a recording medium apparatus, as recited in any of amended independent claims 1, 2, 40 and 41.

Further, because of the above discussed differences between that which is recited in the independent claims and the disclosure of Taniguchi, one of ordinary skill in the art at the time of the invention would not have been motivated to modify the system disclosed in Taniguchi to arrive at that which is recited in any of amended independent claims 1, 2, 40 and 41.

Peters et al. (Peters) fails to disclose or suggest the shortcomings of a combination of the disclosures of He in view of Taniguchi such that a combination of the disclosures of He, Taniguchi and Peters would disclose or suggest that which is recited in any of independent claims 1, 2, 40 and 41.

As discussed in paragraphs 42-44 and 47 of the Office Action, Peters is relied upon for allegedly teaching that which is recited in claims 20-24 and 27. While not addressing whether Peters in fact discloses or suggests that which is recited in claims 20-24 and 27, it is respectfully submitted that Peters fails to teach: an access manager that is operable to investigate an access state of a recording medium apparatus, as required in any of amended independent claims 1, 2, 40 and 41.

Because neither He, Taniguchi or Peters discloses or suggests that which is recited in any of amended independent claims 1, 2, 40 and 41, as discussed above, a combination of the disclosures of He, Taniguchi and Peters additionally fails to disclose or suggest that which is recited in any of amended independent claims 1, 2, 40 and 41.

In light of the above discussion, it is submitted that claims 1, 2 and 7-41 are patentable over the prior art of record.

Having fully and completely responded to the Office Action, Applicants submit that all of the claims are now in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

Respectfully submitted,

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体の帯域とネットワークを構成している単位、例えば、各ループなどの単位での帯域の計算を行い、各ループごとにネットワークの帯域を管理している。

【0031】

アクセスマネージャ106は、以上に示した管理機能処理部を用いて、データに対するアクセスを管理している。

【0032】

次に、アクセスマネージャ106におけるアクセス可否の判定手順を、図4を用いて説明を行う。アクセスマネージャ106では、ノードからのアクセス要求とデータベースからのデータ管理情報を受信した(処理ブロック401)後に、アクセス可否の判定処理402が行われ、初めに、アクセスステート管理機能処理部301では、アクセスステート情報を用いて、アクセス要求されているデータを格納しているハードディスクのアクセスステートを調べる。

【0033】

判断処理403として、(a)先発アクセス=ライトアクセス、かつ、アクセス要求=リードアクセス、(b)先発アクセス=リードアクセス、(c)先発アクセスなし、のいずれかである場合に、Yesとする。

【0034】

続いて、ハードディスクのI/O帯域管理機能処理部305で、判断処理404として、ハードディスクのI/O帯域において、十分な余裕がある場合に、Yesとし、ネットワーク帯域管理機能処理部306で、判断処理405として、ネットワークの帯域において、十分な余裕がある場合に、Yesとする。

【0035】

以上の判断処理403～405の3つの条件を全て満たした場合は、処理ブロック407として、アクセスステート管理機能処理部301でアクセスの登録を行い、ハードディスクのI/O帯域管理機能処理部305とネットワーク帯域管理機能処理部306でアクセス帯域の確保を行い、判定結果としてアクセス許可とデータ管理情報の送信409を行う。なお、ファブリック・スイッチを備えたシステムの場合は、ファブリック・スイッチ機能管理処理部304で、アクセス経路の確立(処理ブロック408)を行った後に、判定結果としてアクセス許可